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ABSTRACT

This report is one of a series produced by the Science Education Center, University of Iowa. The series is designed to communicate results of research, developmental projects, and philosophical investigation to science educators. This particular report reviews the literature concerned with student teaching, with particular emphasis on the current trend to integrate theory and practice in teacher education. The conclusion is made that while most programs have recognized the need to integrate theory and practice, there is still little agreement on how to bring about this integration. References are included. (MA)

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technical report 13

The Cooperating School in
Teacher Education--Source
of Theory or Practice?

by
Robert J. Hardingham

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The Cooperating School in Teacher Education --

Source of Theory or Practice?

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Introduction

Student teaching is generally accepted as an integral part of teacher education programs and the value of the experience is usually acknowledged by both faculty and graduates. It is often viewed as a period of transition between life at college and a career of teaching during which opportunity is provided:

- (1) to assess strengths, weaknesses, and potential as a teacher while the day-to-day guidance of an experienced supervising teacher is available;
- (2) to gain confidence in ability to put the theory studied in college into practice in the classroom; and
- (3) to determine what further study and practice are needed for the ever continuing task of self-improvement!

While the nature and range of activities provided by individual schools may vary considerably, some common elements are generally discernible. ^{2,3} Initial experiences allow the student to become acquainted with the community, school, staff, and pupils. Such introductions prepare the student for the major activities which involve preparation for full teaching responsibilities. Here the student begins by assisting with teaching and working with individual pupils. As the student teacher demonstrates his ability to assume more direction of a total class, additional teaching activities are added to the teaching load until the student teacher assumes full responsibility for the class.

Most programs include a supervisor who is a liaison person who helps to promote better understanding between the school and the college; who helps the student teacher in the process of evaluation and in solving his personal and professional problems; who visits the student teacher and observes lessons being taught; and who interacts and collaborates with the cooperating teacher and other members of the school staff who work closely with the student teacher. Generally, there is also a cooperating teacher who has daily contact with the student teacher and must be able to talk about and demonstrate effective teaching. The student teaching usually takes place in a public school setting in which the student teacher interacts with the cooperating teacher and to a lesser extent with the principal, other student teachers, college staff, and other employees in the school.

When student teachers are asked to evaluate their program of preparation, they inevitably maintain that the student teaching experience is the most valuable single experience in the entire program.^{4,5,6} Most of them consider formal college courses a necessity in the preparation program, but "they conclude with the opinion that only through actual teaching experience can the prospective teacher fully realize the challenges and responsibilities of teaching."⁵

Ballantine et al (1966) examined the attitudes of 342 teachers toward their education courses and found that they consistently ranked student teaching of first importance over all other educational courses and academic fields of preparation.⁶

Problems

The value attached to these direct experiences indicate that student teaching will continue to receive high priority in teacher education programs. However, there exists a lack of agreement as to how, when, and where student teaching should be fitted into the education of future teachers and more importantly, how the program may be effectively implemented.

A move toward earlier involvement of student teachers in school--~~based~~ activities is a trend becoming more accepted as a desirable component of teacher education. It is generally argued that this involvement is necessary since it helps students relate their experiences to theory, provides for evaluation of performance of teaching skills, and helps students make the transition to the role of a teacher in a more developmental context. ⁷

While the number of studies evaluating the success of early school experiences are somewhat limited, some results indicate early activities in schools produce changes in negative directions. Graening (1972) outlined a program in which student teachers spent mornings as teacher aides in junior and senior high schools. ⁸ The experience produced a significant decrease in the students' enthusiasm and idealism toward teaching. Certain types of cooperating teachers produced a greater dampening effect than others in their teacher aides. Kuhlman (1973) reported that student teachers in traditional programs had significantly higher attitudes toward math teaching than those teaching in innovative programs. ⁹ In a further study reported in 1975, Kuhlman compared the attitudes and

perceptions about teaching of three different groups of student teachers.⁷ His results indicated that the group with only observational experiences in the school held more modern and open attitudes toward teaching than either the group acting as teacher aides or the group with no school experience. He concludes that the dampening effect of the early teaching experiences may have affected the attitudes of the teacher aide group. On the other hand, it is useful to note that the attitudes of those with no school-based experience were similar to the attitudes of those acting as teacher aides. It may be that an early non-threatening experience such as observation is preferable to either of these extremes. Yet the solution would appear to be far more complex than this would suggest.

The large variety of practices and procedures existing within colleges and universities in regard to student teaching programs indicates the difficulty in providing detailed guidelines for successful school experiences. Conant (1963) found wide variations with reference to the length of the student teaching experience, supervisory practices, and the seminar accompanying the student teaching period.¹⁰ Likewise, one of the major results of a questionnaire concerning the student teaching programs of thirty-eight midwestern institutions was: "Programs were earmarked as much by their variety as by their similarity."

Evans' investigation of the supervision of the student teaching in 225 colleges and universities of the American Association of Colleges for Teacher Education revealed:

... wide differences in the practices in the various institutions with regard to the number of students assigned to supervising teachers, the number of students which a college supervisor is supposed to supervise, the number of visits which each college supervisor is supposed to make upon the student under his charge,

the number of semester hours of student teaching required of students in various schools, the number of college credit hours granted to the student for a given amount of student teaching, and other practices. ¹²

Gregory (1971) outlines the results of a survey to ascertain the criteria used in the ~~selection~~ of supervising teachers by institutions, having teacher education programs. ¹³ Eighty institutions responded to the survey from forty-five states in October, 1970. Of these, 23% required that their supervising teachers be qualified at the masters level, 57% at the bachelors level, and 20% at the level of certification. Fifty-six percent required a minimum of three years teaching, 20% two years, 8% none, 16% from 1-5 years. Seventy-four percent required that the teacher be teaching in his major area, and 26% that he be teaching in at least his minor area. In 6% of the institutions teachers were required to volunteer their services, in 15% of cases recommendations were made by administrators, in 41% of cases administrators worked with the education institution, and in 34% of cases there was a mixture of the approaches outlined above.

Seven percent of the institutions required teachers to have completed a course of supervision, 22% indicated there were trends toward such a requirement, and 3% indicated it was a state requirement that teachers be certified in supervision.

Eighty-four percent of teachers received some form of compensation--usually payment or tuition fee waivers. In 35% of the cases reported, teachers supervised more than one student teacher per term. However, many of these were experimental or team teaching experiences.

Teachers were asked no longer to serve in the capacity of a cooperating teacher for a number of reasons including: personality conflict, inability to get along with students, ineffective performance, incompetence, 'extreme (psychotic) behaviors', out-dated teaching methods, unable to adapt to sharing the classroom, and inability to accept and carry out the responsibilities of a supervising teacher.

Kachur (1973) discusses the growing dissatisfaction on the part of classroom teachers with some student teaching programs and identifies the following reasons for this concern: ¹⁴

- (1) the rapid expansion of the laboratory phase of teacher education into the public schools without concurring efforts to fully involve classroom teachers in the planning of those programs.
- (2) the enthusiastic acceptance by some school administrators of student teaching programs without first exploring with teachers their interest and willingness to participate in such programs.
- (3) lack of awareness on the part of some school administrators of the time and effort the responsibilities of being a co-operating teacher entails.
- (4) inconsistency in the policies and procedures governing student teaching programs as determined by public schools and teacher-preparation institutions.
- (5) lack of direction and support from the school administration to do an adequate job of teaching classes and working with student teachers.

Kachur emphasizes the need for classroom teachers to be considered as partners with college faculty in the student teacher program. They should be involved in the determination of the policies and procedures governing the student teaching programs in which they participate. As the quality of the student teaching program rests largely upon the interests and concerns of the classroom teachers, efforts must be directed toward helping these teachers contribute fully to the success of the program.

To guide administrators in evaluating their present situation, Kachur lists a number of questions to determine whether present student teaching programs are acceptable.

- (1) Have your classroom teachers been involved in the development of student teaching placement policies for your school district?
- (2) Does your school district need a policy governing the number of student teaching assignments that can be made per teacher, department, grade level, and/or school building over a specified period of time?
- (3) Do your classroom teachers feel they can refuse acceptance of a student teacher without fearing that adverse evaluation will follow?
- (4) Are your classroom teachers given sufficient advance notice when student teachers are assigned to them?
- (5) Are student teachers assigned equally among qualified classroom teachers?
- (6) Is the task of supervising a student teacher regarded as part of the classroom teacher's professional load?

- (7) Do you provide your cooperating teachers released time for conference planning and consultation with their student teachers?
- (8) Does your school district provide the necessary resource and instructional materials that will aid the classroom teacher in the supervision of a student teacher?
- (9) Do your current cooperative student teaching agreements with teacher preparation institutions include representation by classroom teachers?
- (10) Are your cooperating teachers given opportunities to participate in college or university conferences or regional, state, and national meetings on student teaching?
- (11) Are there any specific types of recognition given to your classroom teachers who volunteer participation in student teaching programs?

Where cooperating teachers have been given greater recognition in the education program, student teaching has generally been reported as being more positive. Pace (1976) describes a study that investigated the effects of participation in collaborative supervision on the ability of individuals to perceive the helpfulness of others' responses, their ability to make helpful responses, and their perceptions of themselves and others as helpers.¹⁵ A control group followed the usual pattern for student teachers at the University of Tennessee and an experimental group received training in collaborative supervision skills and then were assigned for ten weeks to five collaborative teams consisting of two or three student teachers and their cooperating teachers.

Collaborative supervision is conceptualized by Pace as consisting of "supervisory behaviors based on the assumption that the interdependence, competence, and specialization of workers within the educational organization--and this includes student teachers--make possible the giving and receiving of help from unequal positions of influence".¹⁵

The three major phases of the training sessions revolved around the following themes:

- (a) Student teachers needed an opportunity to develop a concept of themselves as supervisors and a feeling of responsibility for providing psychological and technological support for other members of the team.
- (b) Appropriate supervisory skills were required. There was a need for effectiveness in communication, in cooperative planning, in describing and analyzing teaching behaviors, and in working with fellow teachers in the process of actualization.
- (c) Workshops for teachers and students were needed to develop role concepts including process of helping and being helped by others and skills necessary for helping and being helped.

Pace reports that previous research in the area of collaborative supervision indicates that; "(1) supervisors of student teachers are finding it both beneficial and necessary to work together to achieve their goals; (2) student teachers have professional competencies which they desire to use for their own improvement and that of their fellow teachers; (3) many co-operating teachers have recognized the expertise of their student teachers and utilized it for improvement of their own teaching; (4) the relationship between student teacher and cooperating teacher is a critical one; and

(5) ability to perceive helpful responses and respond effectively in helping situations is a function of effective interpersonal relationships".¹⁵

The outcomes reported by the author indicate that student teachers and cooperating teachers enjoyed working together as members of collaborative teams. The planning sessions held by the teams led to improved classroom teaching and the anxieties of student teachers were reduced. Student teachers found it easier to adjust to the school situation and had more opportunities to perceive themselves as professionals.

As a result of this study, Pace offers the following conclusions:

- (1) Teachers can become more receptive to being helped as they work in a situation which requires collaboration, or the giving and receiving of help from unequal positions of influence or authority. This increase in receptivity goes hand in hand with more positive perceptions of subordinates in the role of helper. Collaborative supervision, then, seems to hold potential as one means of helping to overcome the isolation in the instructional setting which arises from fear that revealing need for help is an admission of professional inadequacy.
- (2) Teachers receive positive reinforcement from working together to help one another. They are able to give one another both psychological and technical support.
- (3) Collaborative supervision, as implemented in this study, provides increase in ability to perceive helpfulness, a necessary but not a sufficient condition to being able to give helpful responses; therefore, further attention would be required to aid teachers in making helpful responses.

While the project outlined by Pace appears to have been reasonably successful in overcoming some of the anxiety and negativism created in the student teacher by student teaching experiences, it would be interesting to examine what the outcomes would be if university supervisors were included in the collaborative groups. This could be useful in bridging the gap between university courses and school experiences.

While there have been some interesting experiments in teacher education, few have been guided by an adequate theoretical base to redirect teacher education in general. Little has been done to overcome the problem of theory versus practice in teacher education.

Metzner et al (1972) argue that a common factor causing concern for young teachers is the nature of college preparation for teaching.¹⁶ Beginning teachers feel that much of teacher education is ineffective when they attempt to deal with teaching problems in the field.

Experienced teachers are definite regarding what they feel are the major weaknesses of professional courses. A study of 851 elementary and secondary teachers revealed that they saw the two major problems with professional courses as (1) too theoretically oriented and impractical, and (2) not identifying the real, genuine problems encountered in teaching. This view becomes a theme with minor variations when newly graduated teachers are asked to indicate what changes they feel would be most beneficial in teacher preparation for future prospective teachers. Almost all such investigations, typified by those of Brouen, Miller, and West arrive at similar conclusions.

The new teachers want college experiences that are more reality-oriented, emphasizing specific classroom procedures and providing for greater involvement with children at earlier stages of teacher preparation

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Available evidence indicates that student teachers feel they receive by far the most help in facing teaching problems from their cooperating teacher, that their college supervisor is next most helpful, and that they receive very little help from their methods instructor. However, as shown in studies by Bills, Macagnoni, and Elliot, and Medley, the college supervisor is a distant second to the cooperating teacher, with minimal affect on student teachers' attitudes and activities. And for all the influence he exerts on student teachers' behavior, the methods instructor might as well be nonexistent.¹⁶

Fuller¹⁷ reaches a similar conclusion from an examination of a number of studies. She says beginning teachers are concerned about class control, about their own content adequacy, about the situations in which they teach, and about evaluations by their supervisors, by their pupils and of their pupils by themselves. She says there is an absence of concern about topics which usually appear in teacher education courses: instructional design, assessment of pupil learning, dynamics of child behaviors, and methods of presenting subject matter.

By examining the discrepancy between what teachers say they need and what is supplied them, Fuller proposes a developmental conceptualization of

teacher concerns. There are three phases in her model: a pre-teaching phase, an early teaching phase, and a late teaching phase. The first phase is a time of non-concern and occurs before the student has a chance to participate in school activities. The second phase is characterized by concerns for self. This is a major issue for student teachers during student teaching. The third phase is concern with pupils and does not emerge as a major issue until the concerns of phase two have been considerably reduced.

While Fuller's model provides useful guidelines about what is included in teacher education programs and when to deal with particular issues, it does not provide a conceptual framework for bridging the gap between college and school. How to integrate theory with practice remains as a major challenge to be met by those involved in teacher education.

Integration -- A Solution?

While there is a growing consensus that teacher education must become more integrated, as usual, different people have different things in mind even though they use the same word. It is therefore necessary to obtain a clear understanding of the various meanings being attached to this concept in order to examine various approaches to integration.

Francis has made a useful beginning at clarifying the concept of integration.¹⁸ He distinguishes what he calls "three quite different and current interpretations of integration as an educational concept", all of which are manifested by the different ways arrows are used in models or diagrams of each of these interpretations.

The first or "traditional interpretation of integration" is that "an integrated education is a summation of discrete bodies of knowledge, each body of knowledge being seen, individually as contributing to a common educational aim". Thus, in the typical pre-1960's teacher education program, teacher education was seen as being the sum of all education subjects, that is, methods subjects + educational psychology + philosophy of education = teacher education. But as Francis implies, the proposals of teacher education reformers of the 1960's also rested on the same interpretation of integration. All they did was change the sums being added together: liberal arts + a reduced number of methods courses + intellectually improved foundations of education courses = good teacher education.

Both interpretations are thus illustrated by this model:

Academic $\longrightarrow$ Practical

Teacher education is supposed to go from the academic to the practical as the arrow illustrates.

The second interpretation is what Francis calls "The current orthodox interpretation of integration" which holds that integration is promoted by relating the theoretical and academic studies of, say, History II, Philosophy of Education, Methods of Teaching English, with the practical and professional experiences of the student teacher in the classroom content." This is illustrated by a model in which the arrow goes back and forth:

Academic $\longleftrightarrow$ Practical

However, Francis sees this interpretation as having a number of problems. To begin with, like the "traditional" interpretation, the "current orthodoxy" is inadequate to the extent it relies on a theory of knowledge instead of a theory of learning. While the traditionalists based their curriculum on

a theory of knowledge in which course contents were categorised under headings such as "academic", "educational foundations", and "methods", so the current orthodoxy has divided appropriate knowledge into a further dichotomy of the theoretical and the practical. It must be emphasized, Francis argues, "that such a division is still no more than a means of categorizing knowledge to be learned by the student teacher. A revamped theory of knowledge is insufficient as an explanation of how the learner relates the different categories, no matter, whether the categories are 'academic', 'educational foundations', and 'methods', or theoretical and practical". Thus, Francis concludes, "A valid concept of integration must be primarily concerned with the process by which the different kinds of knowledge are related to produce integration in a student teacher's learning. That which is to be related may be of importance but of secondary importance."

A second problem that Francis sees with the "current orthodoxy" is that, as with the traditional interpretation, both teacher educators and student teachers have very little control over the selection, organization and pacing of knowledge transmitted and received in the pedagogical relationships. Both are pretty much at the mercy of whatever the current conceptions are of the boundaries between the contents of various subjects, and neither one is very free to roam back and forth between these boundaries as the need arises.

To overcome these two problems with the traditional and current orthodox interpretation of integration, Francis advocates a third conception of integration. Namely Integration as a Life-Long Communications Network". In this conception, "an integrated education is achieved through

the learner being in communication throughout his life with those teachers who are perceived by the learner as being relevant to his needs. In the case of teacher education this concept of integration promotes a novel model of the student teacher being in communication with those teachers in university, college, community or school relevant to his need to be educated as a teacher. Furthermore this communication network would recur in all these phases of the learning teacher's professional life: the pre-service phase, the induction or internship year of the beginning teacher, and the in-service phase".

This conception of integration meets certain criteria for good educational practice advocated by Basil Bernstein, Paulo Freire, and Ilean Illich. As Bernstein would have it, the conception has "strong" as opposed to "weak" frame, that is, students and teachers both have a lot of control over the selection, organization and pacing of knowledge. As Illich would have it, this interpretation does not start with the question, 'What should someone learn?' but with the question, 'What kinds of things and people might learners want to be in contact with in order to learn?' As with Illich, also, this interpretation would put learners in touch with a variety of 'educational webs' or networks: things, models, peers, elders. Finally, as Freire would have it, this interpretation gets away from the subject-centered or 'banking conception' of education. Teacher education is no longer conceived of as depositing in the student teacher's mind a prescribed number of 'course contents', but, rather it is conceived as a process in which 'dialogue' and 'dialogic action' rather than subject matter are considered of primary importance because while communication must of course have a knowledge base, the subject matter is, says Francis, "rigorously based on the needs of the student teacher".

In summary then, the model of this interpretation of integration would have arrows going back and forth between the teacher, his/her peers, and the academic community. The amount of communication going on would be the measure of the amount of integration taking place; the process would be a life-long one; teacher educators as well as student teachers would be learning from the dialogue between them, the content or subject matter of teacher education would be 'rigorously' based on the needs of individual student teachers, and the number of educational webs or networks would be maximized.

There are some problems with Francis' argument. For example, the problem of determining the 'needs' of student teachers is just as big as trying to determine the 'needs' of children. It would also be easy to distort his conception of integration as a life-long communications network in such a way as to justify continuing doing business as usual in teacher education. However, it is a valuable beginning to understanding the issue of integration.

While the Francis article exposes some real problems with the current orthodox conception of integration, Bartholomew (1975) raises even more problems, and issues that also raise questions about the adequacy of Francis' conception of integration as a life-long communications network. The division which the current interpretation of integration makes between theoretical and practical knowledge in teacher education is not simply an intellectual mistake, argues Bartholomew, but is the result of the hierarchy division of labour in teacher education between 'theoreticians' (usually employed at the college or university level) and 'practitioners', in this case, student teachers and in-service teachers who are out in the schools."¹⁹

"In effect I am suggesting," writes Bartholomew, "that theorizing is an abstraction of a person from those about whom he theorizes. The abstraction of the thought, and of the person whose thoughts they are, is mutually sustaining. Corresponding to all our educational categories and to our conceptions of their relations, is a division of labour which is strictly hierarchical. It can be traced from those who take to themselves a monopoly of creative mental labour in the creation of knowledge, to those to whom it is transmitted. Education is thus split roughly into learning (reviewing knowledge), teaching (transmitting knowledge) and researching/theorizing (creating knowledge), with its corresponding institutions and bits of institutions. These institutional arrangements give rise to the theory-practice problems that people working somewhere within them express. . ."

Bartholomew is thus very skeptical about new teacher education programs like that of Carnie and Preston (1975)²⁰ which are examples "of course planning as a way of overcoming inadequacies arising out of the division of labour as it exists in initial training. An essential feature of the Carnie and Preston program is that the students' classroom experiences and problems and theoretical studies will constantly inform each other. Within current political realities they are proposing to change all that it may be possible to change, but I would predict that 'in the eating' their course will not differ too much from the conventional courses they criticize for two reasons. First, the only theory available to them is that developed out of relation to practice, and without concern for its applicability to practice. Secondly, the institutional split of school and college is still there with its corresponding division of labour for students (theory is

still located in college and practice in the school) and where staff will be the main source for theory. The division of labour, and its mutually sustaining theory which provided the departure for their planning, is perpetuated in that planning. This contradiction must be seen as a consequence of planning from a particular position in a division of labour".

"The essence of my critique", Bartholomew continues, "May be expressed through a paraphrasing of Marx...Educational theorizing 'takes for granted what it is supposed to explain'. It 'starts from facts...but it does not explain them to us'. That is, educational theory may be seen as a consequence of, or a reflex of, the world it talks about but it cannot realise this or comprehend itself as part of a social world. In the case under discussion, theory and practice, we are provided with many different formulations of the problem, and accounts of important work in which people have made great efforts to overcome problems in teacher training which arise out of discrepancies between theory and practice. I have implied that these attempts are a fight against institutional arrangements, that is practical arrangements. What I have attacked is the way theory has been left intact through these discussions and the way in which the dichotomy has not itself been explained. The point is not to start from the existence of theory and practice, but to treat these, and debate about them, as requiring exploration themselves".

How, then, does Bartholomew suggest we might start successfully to address the issue of theory and practice? To put it in Francis' terms, by examining "the arrow in the model". But Bartholomew seems to understand the importance of the arrow in the model even more deeply than

Francis does, because for Bartholomew the crucial thing is not how many arrows there are or in which directions they are pointing, but rather the nature of the communication process the arrow symbolizes. For unless we begin to understand more clearly what must go on in that communication process, we are not going to be much more successful than we are now in resolving the issue.

Bartholomew agrees with others who have argued that solutions to the issue "can only be sought in particular and practical contexts, and that the relation of theory to practice is provided, if at all, by human activity which itself is indeterminate". However, the problem still is that the integration of theory and practice is left "to those very processes which paradoxically theory never even treats as an object -- the question of how we turn what we know into action . . . what no one attempts or shows a possibility for is a way of conceptualizing an actual relation between theory and practice. Why is this relation itself never an object for theory? . . . In not treating the relations of theory and practice as an object for inquiry, we produce a version of the world that preserves the division of labour in which those who theorize have an ascendancy over those who practice."

Bartholomew has not simply given the theorist a new task and still left the practitioner out in the cold as can be seen from the observation which follows. "The very formulation 'theory and practice' is a theoretical formulation which seems to embody the idea that practice is categorically different from theory, and yet how is it if it is? Two points arise in relation to this. First, all human activity is conscious activity. Children and teachers exhibit concern and capacities for relationalities, logic, clarity of expression, evidence of truth, and others which we may too readily think of as the monopoly of theorists. Secondly, on what grounds

can we say that theory is not a practice? I have attempted to answer this in relation to teaching and research in seeing each as practices, inextricable from a hierarchy social organization which they sustain. Few writers put a case for knowledge of the practice of education being generated not from sources other than, but from the practitioners . . . The difference and the relations of theory and practice are not then constituted in categorical differences between the activities of people, but rather in a hierarchical division of labour where the activities of only some people get called theory (or practice) . . . it is only in an analysis which can see problems in the world (in this case the arrangement of theory and practice) as manmade that we can begin to see how to change it".

Attempts at Integration

Various attempts have been made to develop "integrated" teacher education programs. Some are more interesting, and helpful than others, but few respond to the requirements outlined by Bartholomew.

Carnie and Preston (1975) outline an innovative approach to teacher education at Charlotte Mason College at Ambleside in the United Kingdom.²⁰ This project emerged after the James Committee's inquiry into various aspects of teacher education in Great Britain and in response to a White Paper, "Education: A Framework for Expansion". The White Paper called for an "all graduate profession by means of a more flexible, open-ended and challenging pattern of courses".

The course at Charlotte Mason College is designed to include the requirements of a standard pass degree as well as the skills, abilities, and values required of a professional teaching qualification.

. . . "The course is essentially for non-specialist teachers of children from three to thirteen. In it the customary distinction between academic subjects and the study of education is ended, and the centre of the student's attention is less on the subject content than in the past and more on the nature of knowledge, the child's conceptual growth, and methods of learning and teaching in a variety of fields. In fact, the program of work is based on the belief that if the student is encouraged to focus his attention on how children learn and on how teachers can provide effective learning situations for them, there will be in this central aspect, and in all related areas, more than sufficient course content to provide interest and satisfaction for the intending teacher. Indeed it is expected that he will both be better prepared than in the past for his first teaching post and will have received, through his concentrated study of a vital area of human behavior, a worthwhile personal education.

The whole of the staffing resources devoted to the initial teacher training sector of the college's work is being redeployed, and all traditional college departments, including Education, will vanish. In their place, under a Director of Studies, teams of tutors will offer courses in child studies and learning studies, and all members of staff will join school studies teams and will act individually as tutors for open study".

Cumming and Scott (1974) appeal for philosophers, historians, sociologists, and psychologists of education to get together in teacher education to analyze educational problems.²¹ Issues related to such areas as the school curriculum and the nature of teaching should be investigated by groups containing a variety of interests rather than having such problems analyzed from the limited perspective of each individual discipline. The authors

claim that the task of fusing the contributions from each of these disciplines into some meaningful solutions to the educational problems discussed fell to the students themselves because it "was accepted as being too difficult a task for the academics to do . . ." The faculty must now accept their responsibility to determine the educational theory that will guide educational decision-making. This is becoming increasingly necessary because "The teacher today is being called upon to make an increasing number of professional decisions which will not only affect the lives of individuals, but, in the long run, the nature of society. Not only must the teacher have a deep knowledge of his teaching disciplines, but also a knowledge of those disciplines, and their interrelationships, through which educational problems may be interpreted and appropriate action determined."

This article indicates that Cumming and Scott have little appreciation of the division of labour as discussed by Bartholomew. It also demonstrates an unrealistically simple approach to the relation between theory and practice.

Marsh (1975) provides an outline of an individual pre-service teacher education program at Murdoch University.²² Marsh claims that the Murdoch program differs from traditional courses in four major aspects:

- (1) Interrelated Learning -- an integrated approach to the history, philosophy, and sociology of education;
- (2) Experimental Activities -- for example, having a student teacher actually teach Piaget's concept of conservation instead of simply reading and discussing it;

- (3) Individualization of Instruction -- made possible by the development of self-instructional material packages on topics from classroom discipline to simulation games, as well as the requirements to complete two independent studies and study "curriculum models from Skinner to Rogers. . . so that each student has an opportunity to build up his own unique approach to teaching and learning";
- (4) Informal Counselling -- provided by tutor-supervisors (practicing teachers hired for short term appointments of two-three years) whose function is to bridge the theory -- practice gap by facilitating the "integration" of what student teachers have learnt at the university with what they encounter in the field.

This model has not overcome the division of labour. In fact, the most essential task of bridging the theory-practice gap has been left to temporary university employees.

Queens (1974) outlines a program which he believes will make a major contribution to overcoming the theory-practice gap.²³ Unfortunately, the literature does not indicate how successful such a program has been or even if the model has been implemented. The essential element of the program is what Queens calls "a Teacher Education Model".

"This is a unit of approximately fifty students (in the first instance potential teachers but preferably not limited to them) and five full-time lecturers with proficiency in a range of educational and subject disciplines. With each module is linked a cluster of approximately six schools (infant, junior, and secondary). Each student focuses preferably throughout his course, on one school and one class only, working at first with a maximum of six pupils. Each lecturer, too, is associated with one school only.

Each teacher co-ordinates a team of up to six students. In addition, members of the community, lay and professional, are involved in the module in a wide variety of roles as teachers and learners. The unit for working purposes varies from individuals, through small groups (two to twelve) to a complete module or combination of modules. Most of the work is undertaken in small groups, such as workshops, seminars, tutorials, school or evaluation groups; some temporary, some permanent; some geared to single disciplinary, others to interdisciplinary modes of organizing knowledge; some single age, some mixed age (lecturer, teacher, 18 year old and mature students, pupils from different age levels of schools, and members of the community). A student may be a member of several groups concurrently, but is advised to limit the number. Within this framework the module is free to determine its aims, objectives, curricula, syllabuses, time-tables, methodologies, materials, media, learning/teaching strategies and modes of evaluation. Further, each module is meant to be a 'living' unit with a base of its own, a centre with a variety of different sized rooms, a generous share of facilities and equipment, and plenty of space for display and for the dissemination of information, because this is not material passed down the line of management, but something to which everyone is encouraged to contribute".

Peterson et al (1975) describes a sophomore level course for education students aimed at overcoming some of the more common criticisms of teacher education programs, especially the theory-practice split.²⁴ The course is concerned with being "student-centered, self-directed, school-and-community-oriented" with the following key features:

- (1) Continuous program of human relations training;
- (2) Forum on self-awareness with particular emphasis on the student's commitment to teaching and self-selection into or out of the program;
- (3) Student contracts for course work with evaluation based primarily on self-assessment;
- (4) Choice from a variety of books, content presentations, and school and community activities so each student can individualize his program;
- (5) Use of student facilitators as classroom assistants;
- (6) School experience on a regular basis at the sophomore level with emphasis on applying ideas in the college classroom.

This article contains some useful suggestions and ideas worth further consideration.

Bambach (1974)²⁵ and Ruhen (1975)²⁶ believe that the only way to 'open-up' Australia's schools and classrooms is to introduce teacher education programs that express 'open' attitudes, philosophies and practices. To meet such a challenge teacher educators will need to examine the new roles for teachers and learners and produce relevant teacher education programs. Both of these articles outline aspects of the open education program for teacher trainees at Churchlands Teachers College in Perth. While both articles are enthusiastic, they acknowledge the existence of many problems. Ruhen outlines some of them in the following words: --

"The major difficulties were more administrative in nature than philosophical. The rigidity of the time-table denied the flexible scheduling hoped for and, although resisted, a routine rotation of learning modes soon became established. Time for co-operative planning needs

to be allowed for when administrators design their schedules. In this humanistic period of education overtly every consideration is given to student needs often to the neglect of the staff's capacity to adequately fulfil them. The success of team teaching in an 'open' environment is directly proportional to the time spent by the staff in co-operative planning and evaluation. With ever-increasing student numbers as politically minded administrators seek status and increased financial allocations, the burden on staff is proportionately greater. Larger groups of students, more time in evaluation, less personal contact with students and an increase in teaching commitment means less opportunity to meet the objectives of open education.

"Churchlands has tremendous potential to become an open college of teacher education. It has the facilities, resources and staff expertise. However, before structures become firmly established it needs to re-examine carefully its organization patterns. To emerge as a truly open college and provide its students with a well founded conception of open education it requires an administrative framework that is itself open."

The experience at Churchlands reflects many of the difficulties facing institutions which are keen to experiment with innovative programs in the theory-practice issue.

Webster (1975)²⁷ reacts to a claim by Professor Hirst that teacher training programs "must marry the theory it does to the actual practices with which it is concerned. All theory which is not so linked is, from the point of view of professional training, valueless". Webster notes that:

"It is . . . difficult for even the greatest enthusiast for such a policy to implement it. There just does not exist a coherent body of practical theory concerned, for example, with the relative strengths and weaknesses of various forms of school and classroom organization, the

selection of knowledge and its presentation to meet the needs of pupils of different ages, abilities, aptitudes and backgrounds, the keeping of records and making of assessments. There is information about all these matters, and an abundance of variously informed opinion. There is also much theorizing by philosophers, sociologists, psychologists, and historians, but there is little theory that illuminates practice and is of immediate relevance to the young teacher. In the absence of a body of integrated theory, Professor Hirst's hope that we might evolve 'a comprehensive job analysis of the job young teachers nowadays carry out' must remain a pipe dream. The job young teachers actually do varies enormously from school to school; within a school, from department to department, within a department, from teacher to teacher, and a teacher might also change his practice from year to year depending on his response to outside influences and pressures. Practice tends to be based on the whim of fashion rather than any vigorously argued out theory. It is this that gives teaching its semi-professional status. A body of ~~informed~~ theory has never emerged because of the isolation of the partners involved in the enterprise: of methods lecturers from foundations lecturers, of the staff of education departments from teachers in school".

Webster's proposed solution to the problem is this:

"It is my plea that the creation of a body of practical theory should be the normal type of in-service training . . . At every level and stage of in-service training the teacher training institutions should be intimately involved, otherwise initial training will grow ever irrelevant and out of date, so that young teachers will ultimately need to be re-cycled during their probationary year. In the notorious example of reading this is already sometimes the case.

Given collaboration between teacher and teacher trainer, initial training might include the following stages.

- (1) Learning the basic skills of communication, possible through micro-teaching, teaching groups of fellow students, and teaching individual pupils and small groups in school.
- (2) A rigorous study of the teaching of an area or areas of the curriculum which would include an analysis of curricula, schemes of work, classroom organization and the presentation of material in the light of the insights provided by the foundation disciplines. This should be coupled with a study of school organization (as it affects the young teacher) the pupils and their background. Many education departments have already begun work of this kind, and the Science Teacher Education Project, directed by Dr. Clive Sutton of the University of Leicester, is beginning to produce teaching materials of great interest.
- (3) Involvement in the curriculum development projects being carried out collaboratively by the staff of the department and teachers in the school. This would be the key element in initial training. It would not only give the student an insight into the techniques involved in planning, implementing and assessing curriculum innovation, but would also provide him with a natural and easy means of making contact with individual pupils, teaching small groups and studying school organization. The emphasis in initial training should be on content rather than performance. Any profit of the student's work would include an appraisal of his understanding of current practice in teaching and school organizations, his appreciation of, and sympathy for, innovation, as well as his ability to communicate with pupils and organize learning

situations. Theory and practice would thus become one, and a separate assessment for either unnecessary".

For Webster, this proposal implies that the college education lecturer and the student-and in-service teacher are going to have to "speak the same language" and "share the same practical theory." But he adds this unsettling conclusion:

"Unfortunately, there are powerful institutional forces working against collaboration. It is particularly unfortunate that the division between 'methods' and 'foundations' lecturers, and even between the various subjects and disciplines within methods and foundation studies, has grown so markedly in the past decade. Educational studies have become a blatant example of Professor Bernstein's 'collection code', displaying a 'strong boundary maintenance' between the various subject areas. This is in part due to the appointment of specialists as a result of the 'sixties campaign against' undifferentiated much, and in part to the increased size of departments; the larger the department the greater the tendency to strong boundary maintenance. Within Bernstein's terminology, Hirst is suggesting the replacement of educational studies as a 'collection code' by an 'integrated code', as we would do well to heed Bernstein's warning that such a move 'may well bring about a disturbance in the structure and distribution of power, in property relationships and in existing educational identities. This change in code involves a fundamental change in the nature and strength of boundaries. It involve a change in what counts as having knowledge, in what counts as valid transmission of knowledge and a change in the organizational context."

Thus we see that any significant change to a course is bound to be uncomfortable and this will be greater in the larger and more entrenched education departments.

Evans (1973)²⁸ examines the theory-practice problem and notes that there is evidence to indicate that the variables in teacher behavior that appear to have the greatest influence on student performance "seem to be ones which arise through teacher-student interaction", such as degree of organization, clarity of presentation and aims, appropriateness of the lesson to the student, enthusiasm, activity, and teacher's expectations of pupil performance. Evans continues with ...

"In view of this, and the overall uncertainty about what are the most valuable learnings for the pupil, what are the effects of the classroom behavior of the teacher, and what are the most desirable kinds of teacher knowledge, it seems that the most appropriate focus of training is the school context. An additional reason for this view is the well known difficulty we all have in developing propositional knowledge without first-hand experience of the events to which the propositions refer. . .

In general, the conventional educational studies are seen as exposing teachers in training to a range of points of view and generalizations based on more or less sound evidence. However, there is no necessary direct route from principle and generalization to practice. Just as development and innovation inevitably provide their own contextual problems on which the traditional studies fail to speak, so too does any teacher's attempt to apply theory to practice. It is with the contextual problems that the beginning teacher has most difficulty and experiences most need for success. It is with the same kind of problem that the educational innovator has to battle most fiercely. The role of principle and theory is to help us decide what kinds of context problems are worthwhile solving. Without them, the teacher in training, no less than the experienced teacher, is a directionless automation, an extension of a system. However, without contextual experience and reasonable technical

skill it is unlikely his students with the kind of environment he desires and good ideas are likely to be lost. It makes sense to develop principle and theory as much as possible for the student teacher in the school setting.

It also makes sense to start the student teacher in the direction of being a teacher-innovator in the sense used above. The beginnings of a research and development orientation, as with understanding teaching, can surely best be made in the context of the lines of children the student teacher comes to know."

Many of the ideas expressed by Evans have been introduced into two task-based courses at La Trobe University and his wife has been testing his proposals with a pilot program at Kelvin Grove College of Advanced Education. The Kelvin Grove program attempts to eliminate the theory-practice gap: --

"by presenting the realities of classroom life and having the participants look at these realities in terms of practice as theory implemented and theory as practice codified. In the context of the classroom the student links his experiences with his previously held knowledge, skills and abilities and so modifies and changes through his continuing classroom experience. Both in the classroom and in the school he comes to realize that many classrooms contain different realities, and so he moves from context to context, he recognizes what serves as a basis for knowledge, varies. There is no set theory or practice which will 'work' in all situations, what happens in each classroom is determined by the context in which it occurs. The actual experience brings theory to life so that meaning can be found in what previously was abstract theory."

An important aspect of the Kelvin Grove program is the idea that teaching is a problem-solving process rather than the routine application of stereotyped solutions.

Reports indicate that the program is experiencing considerable success for both student teachers and school supervising teachers. Many of the teachers have expressed the view that the seminars and the implementation of student-initiated ideas are proving valuable in-service education within the school.

Conclusion

A number of the articles reviewed in this report indicate the increasingly popular trend to "integrate" theory and practice in teacher education. However, there is little agreement on how best to view the term "integration" in this context. There is also little agreement on how to "integrate" the different method subjects, or about how to "integrate" foundations courses with methods courses and practice. Indeed, the term "theory" itself does not appear to be adequately understood by those planning current programs. For some it refers to that body of knowledge which has been built up in the foundations disciplines, while for others it is used to refer to the bodies of knowledge contained in methods courses.

This issue is illustrated by Young when he says "that a teacher can use an educational program or theory quite effectively without having explored its philosophical and historical backgrounds". That is not to say, says Young, that exploring the historical and philosophical backgrounds of, say, programs and theories in early childhood education is not important, but rather that the benefits of this exploration "are more in the realm of intellect and not in classroom practice". Young

also points out that teachers do not usually become interested in the underlying theory of a particular practice until after they have mastered the practice.

Of course, some would claim that Young is suggesting we put the cart before the horse. Why should one master a practice that may be based on an inadequate or incorrect theory? But unless those involved in foundations of education can demonstrate the importance of such areas against the claim that the benefits of foundations courses "are more in the realm of intellect and not in classroom practice", and teachers are not likely to be interested in analyzing the foundational implications of particular practices until after they have mastered those practices, the future of such courses in undergraduate programs does not look encouraging.

At the level of method courses and school experience, Bartholomew's view that the theory-practice split emerges in large part from the academic division of labour, is supported by Argyris and Schon (1975)²⁹. "It has become a cliché", they observe, "to say that professionals must 'relate knowledge to effective action', or 'integrate theory and practice'; however, it is not agreed that the professional school should effect this integration". They go on to argue that there is a widespread feeling in professional education that "the professional school is responsible for developing basic theory that leads to the best technique", and that practice, not the professional school, "is responsible for teaching, in some mysterious way, how to apply theory and technique effectively".

Argyris and Schon note additional problems "that reflect the mismatch between field experience and the culture of the academy". For example, "The formal structure required by field activity does not match the structure of semesters, courses, and departments. Faculty tend to resist the intrusion of field work into the curriculum, or, at any rate, tend to carry on the academic program parallel to field work as though it did not matter".

Argyris and Schon would agree, then, with the views of Bartholomew, that until we get beyond the academic division of labour in teacher education, we are unlikely to make much successful headway towards a meaningful integration of theory and practice.

As they conclude:

"Practice is best illuminated by connecting it with theory, and faculty members are most competent in theory-building related to their subjects. Learning the theory of practice to be formulated by the busy practitioner, who often tends to abhor explicit theory-building, causes practice to be taught at best as informed speculation and at worst in the form of war stories".

References

1. Perrodin, A. F., "Making a Good Beginning", The Student Teacher's Reader: A Collection of Readings, Rand McNally and Company, Chicago, 1966, p. 2.
2. Stiles, L. J., et al, Teacher Education in the United States, The Ronald Press Company, New York, 1960, pp. 285-87.
3. Johnson, J. A., and Deprin, L. D., "Introduction", Elementary Student Teaching: Readings, Johnson, J. A., and Deprin, L. D. (eds), Scott, Foresman and Company, Illinois, 1971, pp. 1-2.
4. Bennie, W. A., Cooperation for Better Student Teaching, Burgess Publishing Company, Minneapolis, Minnesota, 1966, p. 1.
5. Horton, B. H., "Student Teaching Can Be a Worthwhile Experience", Bulletin of the National Association of Secondary School Principals, XLV, October, 1961, p. 162.
6. Ballantine, F., et al., "Perceptions of Elementary School Teachers Trained at San Diego State College with Respect to the Value of Several Aspects of Their College Preparation", Journal of Teacher Education, XVII, Summer, 1966, p. 223.
7. Kulm, G., "The Effects of Practicum Experience on the Opinions of Secondary Mathematics Teachers", Paper presented at the annual meeting of the American Educational Research Association, Washington, D.C., March 30-April 3, 1973.
8. Greaning, J., "An Evaluation of a Secondary Mathematics Teacher Education Program Emphasizing School Experiences in Contrasting Cultural Settings", paper presented at NCTM Annual Meeting, Chicago, 1972.
9. Kuhl, G., "The Effects of Supervisor, Program, and Community on Perceptions and Attitudes of Student Teachers in Mathematics", paper presented at NCTM Annual Meeting, Houston, 1973.
10. Conant, J. B., The Education of American Teachers, McGraw-Hill Book Company, Inc., New York, 1963, p. 259.
11. Inlow, G. M., "A Comparative Study of Student-Teaching Practice in Thirty-Eight Midwest Institutions", Journal of Experimental Education, XXVIII, June, 1960, p. 349.
12. Evans, H. R., "The Supervision of Student Teaching in the Calculation of Teaching Load", Journal of Teacher Education, VIII, December, 1957, p. 392.
13. Gregory, S. A., "Criteria for Selecting Supervising Teachers", Clearing House, 46, 3, November, 1971, pp. 178-82.

14. Kachur, D. S., "What's Negotiable? A Look at Student Teaching Programs", National Association of Secondary School Principals Bulletin, 57, No. 377, December, 1973, pp. 41-46.
15. Pace, A. F., "Collaborative Supervision; Role-Actor Relationships in Supervision", paper presented at the annual meeting of the Association for Supervision and Curriculum Development, Miami Beach, Florida, March, 1976, pp. 13-17.
16. Metzner, S., et al., "On-Site Teaching: Antidote for Reality Shock", Journal of Teacher Education, 23, 2, Summer, 1972, pp. 194-198.
17. Fuller, F. F., "Concerns of Teachers: A Developmental Conceptualization", American Educational Research Journal, Vol. VI, No. II, March, 1969, pp. 207-226.
18. Francis, R., "The Arrow in the Model: The Concept of Integration in Teacher Education", South Pacific Journal of Teacher Education, Vol. 1, No. 2, 1973, pp. 20-38.
19. Bartholomew, J., "Theory and Practice: An as Yet Unaddressed Issue?", Education for Teaching, No. 97, Summer, 1975, pp. 67-77.
20. Carnie, J. M., and Preston, M., "Applied Education: A New Degree Course", Education for Teaching, No. 96, Spring, 1975, pp. 62-70.
21. Cumming, A., and Scott, E., "Education Studies in Teacher Education (An Integrated Approach)", South Pacific Journal of Teacher Education, Vol. 2, No. 1, 1974.
22. Marsh, C. J., "An Informal Experimental Approach to Teacher Education: The Murdoch University Programme", South Pacific Journal of Teacher Education, Vol. 3, No. 3, 1975, pp. 67-71.
23. Queens, J., "An Alternative Mode of Educating Teachers", South Pacific Journal of Teacher Education, Vol. 2, No. 3, 1974, pp. 35-47.
24. Peterson, V. et al., "Human Relations Training, Contracting, and Field Experiences: An Integrative Approach to Teaching Educational Foundations", Peabody Journal of Education, Vol. 52, July, 1975, pp. 267-272.
25. Bambach, J. D., "Towards an 'Open' Teacher Education", South Pacific Journal of Teacher Education, Vol. 2, No. 2, 1974, pp. 13-22.
26. Ruhen, D. E., "Churchlands: 'Old Wine from a New Bottle?', The Australian Mathematics Teacher, Vol. 31, No. 3, June, 1975, pp. 96-99.
27. Webster, J. R., "The Implementation of an Integrated Approach to Teacher Training", British Journal of Teacher Education, Vol. 1, No. 2, April, 1975, pp. 143-150.

28. Evans, J. T., "Some Prospects for Teacher Education in Australia",
The Future of Teacher Education in Australia, Brisbane: Department
of Education, 1973.
29. Argyris, C., and Schon, D. A., Theory in Practice, Jossey-Bass, San
Francisco, 1975.